

# SAFETY DATA SHEET

## SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1 Product identifier:

Product Name: Recombinant Human IL-21 Protein

Product Numbers: GMP-TL509

### 1.2 Relevant identified uses of the substance or mixture and uses advised against:

Relevant identified uses: IL-21 can enhance the antigen-specific response of immune cells. IL-21 can regulate multiple functions of T cells: co stimulate the activation, proliferation, and survival of CD8.

Not for any animal, human or therapeutic use.

Uses advice against: No additional information available

### 1.3 Details of the supplier of the Safety Data Sheet:

Beijing T&L Biological Technology Co.Ltd.

Floor 1-3, Building 13, No. 50, Huatuo Road, Daxing District, Beijing, 102629, China

Tel: +86-10-53656596

Fax: +86-10-68640843

E-mail: service@seafrom.cn

website: <http://www.seafrom.com/>

### 1.4 Emergency telephone number:

Emergency number: +86-10-53656596

## SECTION 2: HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture:

Classification according to Regulation (EC) 1272/2008, the product is not classified as hazardous

### 2.2 Label elements:

Label elements according to Regulation (EC) 1272/2008, the product does not need to be labelled

### 2.3 Other hazards:

Not /hazardous

### CAUTION!

Handle as if capable of transmitting infectious agents. When handling, follow appropriate guidelines in accordance with good laboratory hygiene and safety protocols. Appropriate clothing should be worn to limit exposure to eyes, skin, and mucous membranes. Wash hands after use.

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances: Organic compound (Human-derived material)

**Composition:** Mannitol, PBS, IL-21 recombinant protein.

**Product Description:** IL-21 is a pleiotropic cytokine produced by CD4+T cells stimulated by response antigens. IL-21 can enhance the antigen-specific response of immune cells. IL-21 is produced by activated T follicular helper cells (tfh), Th17 cells, and NKT cells. It passes through  $\gamma$  The heterodimer receptor complex of c plays a biological role, as well as IL-21 specific IL-21 R. IL-21 derived from T follicular helper cells develops humoral immune differentiation and B cell memory responses through its autocrine effects on T follicular helper cells, affinity maturation for immunoglobulins, and paracrine effects on plasma cells, while dendritic cell migration to draining lymph nodes is also necessary. IL-21 can regulate multiple functions of T cells: co stimulate the activation, proliferation, and survival of CD8. T cells and NKT cells promote Th17 cell polarization, block the production of regulatory T cells and their inhibitory effect on CD4. Interleukin-21 receptor binding enhances the activity and IFN of NK cells activated by cell lysis-  $\gamma$  The production of NK cells, however, limits the expansion of stationary NK cells. In addition, the inhibitory effect of IL-21 on skin allergies is achieved by limiting allergen specific IgE production and the response to mast cell degranulation. The imbalance of the IL-21/IL-21 R system has led to various immunological diseases. IL-21 exerts its function by binding to a specific type I cytokine receptor, IL-21R. IL-21/IL-21R binding activates tyrosine kinases JAK1 and JAK3, followed by activation of transcription factors STAT1 and STAT3.

**CAS Number:** None

**EC Number:** None

**Annex I Index Number:** None

### 3.2 Mixtures:

Information not required

## SECTION 4: FIRST AID MEASURES

### 4.1 Description of first aid measures:

**General Information:** Consult a doctor in case of discomfort with this Security Data Sheet.

**Skin Contact:** Rinse with soap and plenty of water after each contact.

If symptoms arise, consult a physician.

**Eye Contact:** Rinse immediately with plenty of water, also under the eyelids, for at Least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. If symptoms occur, consult a physician.

**Ingestion:** Never give anything by mouth to an unconscious person. Wash out mouth with water. Do not induce vomiting without medical advice. If swallowed consult a physician.

**Inhalation:** Move to fresh air. If symptoms persist, consult a physician. If not breathing, give artificial respiration.

### 4.2 Most important symptoms and effects, both acute and delayed:

Acute and delayed effects are indicated in section 11.

### 4.3 Indication of any immediate medical attention and special treatment needed:

Treat symptomatically.

## **SECTION 5: FIREFIGHTING MEASURES**

### **5.1 Extinguishing media:**

Suitable Extinguishing Media: use extinguishing media appropriate for surrounding fire.

### **5.2 Special hazards arising from the substance or mixture:**

Fire hazard: Not flammable.

Explosion hazard: Product is not explosive.

Reactivity: Stable at ambient temperature and under normal conditions of use.

### **5.3 Advice for fire fighters:**

Precautionary measures fire: Exercise caution when fighting any chemical fire.

Firefighting instructions: Use water spray or fog for cooling exposed containers.

Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

## **SECTION 6: ACCIDENTAL RELEASE MEASURES**

### **6.1 Personal precautions, protective equipment and emergency procedures:**

For non-emergency personnel: Use personal protective equipment. Avoid contact with eyes and skin.

For emergency responders: Use personal protective equipment. Avoid contact with eyes and skin.

### **6.2 Environmental precautions:**

This product is not classified as dangerous to the environment. Keep product away from drains, surface and underground water.

### **6.3 Methods and material for containment and cleaning up:**

Methods and material for containment: Soak up with inert absorbent material.

After clean-up, disinfect affected area.

Deposit in appropriate containers for removal and disposal.

Methods and material for cleaning up: Soak up with inert absorbent material.

After clean-up, disinfect affected area.

Deposit in appropriate containers for removal and disposal.

### **6.4 Reference to other sections:**

See sections 8 and 13.

## **SECTION 7: HANDLING AND STORAGE**

### **7.1 Precautions for safe handling:**

Recommendations shall be specified to:

Avoid contact with skin, eyes and clothing.

Wear personal protective equipment.

Keep away from heat. Keep away from sources of ignition.

Ground all equipment containing material.

Advice on general occupational hygiene shall be provided:

Avoid contact with skin, eyes and clothing.

Wear personal protective equipment.

Ground all equipment containing material.

Remove contaminated, saturated clothing immediately.

Do not eat, drink or smoke when using this product.

### **7.2 Conditions for safe storage, including any incompatibilities:**

Storage conditions: Keep container tightly closed. Keep container in a dry, cool, Well-ventilated area.  
Store in the dark at (2-8) °C.

### **7.3 Specific end use(s):**

Except for the instructions already specified it is not necessary to provide any special recommendation regarding the uses of this product.

## **SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

### **8.1 Control parameters:**

Substances whose occupational exposure limits have to be monitored in the work environment.  
There are no environmental limits for the substances contained in the product.

### **8.2 Exposure controls: None**

Appropriate engineering controls: In particular, ensure adequate ventilation when using in confined areas, or use in fume hoods when permitted. Ensure that all engineering measures described in SDS section 7 are in place and that the laboratory is equipped with a safety shower and eyewash table.

Information on System Design: None

#### **Personal Protective Equipment:**

Respiratory Protection: If the risk assessment indicates that it is necessary, use a suitable respirator.

Hand Protection: Use protective gloves.

Eye Protection: Select appropriate goggles.

Skin Protection: Use appropriate chemical resistant gloves (the minimum requirement is BS EN 374:2003). Wash and dry hands before use, and check the integrity of gloves.

Body Protection: wear appropriate protective clothing.

Thermal hazards: None.

Environmental exposure controls: None.

## **SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

### **9.1 Information on basic physical and chemical properties:**

Appearance: Liquid

Odour: Non-applicable

Odour threshold: Non-applicable

pH: 6.5-7.5

Melting point: Non-applicable

Initial boiling point: Non-applicable

Boiling range: Non-applicable

Flash point: Non-applicable

Evaporation rate: Non-applicable  
Flammability (solid, gas): Non-applicable  
Upper flammability limits: Non-applicable  
Lower flammability limits: Non-applicable  
Vapour pressure: Non-applicable  
Vapour density: Non-applicable  
Relative density: Non-applicable  
Solubility: Soluble  
Auto-ignition temperature: Non-applicable  
Decomposition temperature: Non-applicable  
Viscosity: Non-applicable  
Explosive properties: Non-applicable  
Oxidising properties: Non-applicable

#### **9.2 Other information:**

Thermal decomposition: Non-applicable  
Vapour density: Non-applicable  
Evaporation rate: Non-applicable  
Surface tension at 20°C: Non-applicable  
Refraction index: Non-applicable

### **SECTION 10: STABILITY AND REACTIVITY**

- 10.1 Reactivity:** Stable under recommended transportation or storage conditions.  
**10.2 Chemical stability:** Stable under recommended storage conditions.  
**10.3 Possibility of hazardous reaction:** None  
**10.4 Conditions to avoid:** No dangerous reaction known under conditions of normal use.  
**10.5 Incompatible materials:** Strong acid / base, strong oxidizing / reducing agent.  
**10.6 Hazardous decomposition:** Strong acid / base, strong oxidizing / reducing agent.

### **SECTION 11: TOXICOLOGICAL INFORMATION**

#### **11.1 Information on toxicological effects:**

##### **Mixtures**

##### **Acute toxicity:**

Skin corrosion/irritation: May cause skin irritation in susceptible person  
Serious eye damage/irritation: May cause eye irritation in susceptible person  
Respiratory tract or skin sensitization: may cause respiratory tract or skin allergy to allergic people  
Inhalation: The throat may be irritated and the chest feels tight  
Ingestion: May irritate throat

##### **Subacute/Chronic toxicity:**

Carcinogenicity: Not classified

Mutagenicity: Not classified  
Teratogenicity: Not classified  
Narcotic effects: Not classified  
Reproductive effects: Not classified  
Developmental effects: Not classified

**Ingredients:**

Acute toxicity: Not classified  
Subacute/Chronic toxicity: Not classified  
Other adverse effects: Toxicological properties have not been thoroughly investigated.  
Target organ effects: No known effects under normal use conditions

**SECTION 12: ECOLOGICAL INFORMATION**

- 12.1 Toxicity:** No information available  
**12.2 Persistence and degradability:** The product is biodegradable.  
**12.3 Bioaccumulative potential:** Does not bioaccumulate.  
**12.4 Mobility in soil:** Does not bioaccumulate.  
**12.5 Results of PBT and vPvB assessment:**  
    Persistent, bioaccumulative and toxic substances (PBT-substances):None.  
    Very persistent and very bioaccumulative substances (vPvB-substances):None.  
**12.6 Other adverse effects:** None.

**SECTION 13: DISPOSAL CONSIDERATIONS**

- 13.1 Waste treatment methods:** Dispose of in accordance with local, regional, national, provincial, territorial and international regulations.
- Product:**  
Transfer to a suitable container and arrange for collection by a specialized disposal company according to relevant regulations.
- Contaminated packaging:**  
Dispose of hazardous or toxic waste in regulated landfills or other methods according to relevant regulations.

**SECTION 14: TRANSPORT INFORMATION**

In accordance with ADR / RID / ADNR / IMDG / ICAO / IATA

- 14.1 UN number:** Not classified as dangerous in the meaning of transport regulations  
**14.2 UN proper shipping name:** Not classified as dangerous in the meaning of transport regulations  
**14.3 Transport hazard class(es):** Not classified as dangerous in the meaning of transport regulations  
**14.4 Packing group:** Non-applicable  
**14.5 Environmental hazards:** Non-applicable  
**14.6 Special precautions for user:** Non-applicable

**14.7 Transport in bulk according to AnnexII of MARPOL73/78 and the IBC Code:**Non-applicable

## **SECTION 15: REGULATORY INFORMATION**

**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:**

No known hazards.

No REACH Annex XVII restrictions.

Contains no REACH candidate substance.

**15.2 Chemical safety assessment:** No chemical safety assessment has been carried out

## **SECTION 16: OTHER INFORMATION**

Research Use Only (RUO). Not for any animal, human or therapeutic use. The above information is believed to be correct to the best of our knowledge but does not purport to be all-inclusive and shall be used only as a guide. It does not represent any guarantee of the properties of the product. All materials and mixtures may present unknown hazards and should be used with caution. Beijing T&L Biological Technology Co.,Ltd. shall not be held liable for any direct, indirect, consequential or incidental damages resulting from handling or from contact with the above product.